A CRITICAL REVIEW ON MEDHYA RASAYANA AND ITS MALIABILITY WITH NEURAL CONNECTION

Kulkarni Oorvi. 1
A.S Prashanth. 2

1PG Scholar, Ayurveda Mahavidyalaya Hubli, Heggeri.
2BOS Chairman Of UG Studies RGUHS Bangalore,HOD,Dept Of Kayachikitsa, Ayurveda Mahavidyalaya Hubli, Heggeri.

ABSTRACT

Ayurveda, a Divine science with a divine origin has made its existence till today only because of its wide diversities in herbal, herboimineral and mineral based formulations. Apart from that the treatment principles are excellent and have been planned with dew care. With such a background Ayurveda has been roaring in the society. Our Acharyas talk about both Mansika swasthya and shareerika swasthya. In today’s world shareerika swasthya is possible by many ways explained in Ayurvedic text and preventive measures are also written. Mana, Mathishka, budhi, are other entities which have been constantly working to keep up the heigher mental functions. In modern there is a wide explanation of organs related to these heigher mental functions but when it comes to the working and pathogenesis of any neural/ nervous disorders there are only hypothesis proposed. Most of the heigher mental functions/ coagnitive fuuctions are carried by snerons. Neurons are the basic cells of nervous system which involve as a part of rachana shareera and the impulse which are been transmitted and the participation of many chemicals in this act, is the part of shareera kriya. Neural connections can be improved by many herbs described in Ayurveda . The main aim of the proposed study is to understand and interpret how application of Medhya Rasayana will help in improving these neural connections either by directly nourishing mastishka or by samprabhodana of the structural components participating in the formation of intellect could be the purpose and by this we can also tackel the cognitive disorders etc

Keywords: Medhya rasayana, neurotransmitters, active principles, Gut- brain axis.

INTRODUCTION: The description regarding Medhya Rasayana which is one such concept that requires reconsideration and application. It improves the life span, intelligence, Memory power, promotes health, provides youthful states of the body, improves cognitive abilities, enhances the innate health and delays aging. In Ayurvedic classics, we find many descriptions regarding Medhya Rasayana which promote Pradnya (Dhi, Dhruti, and Smruti) In Ayurveda , health is defined as the equilibrium state of atma, indriya Mana, dosha dhathu mala Agni. This definition necessitates pleasant mind for normal health. To get balanced health, nutritious food is essential (satvika aahara) for proper nourishment. If there is a deficiency then it leads to reciprocal between manas and sharira. Due to this, manas may get afflicted and leads to more mental stress and strain which may lead to some major and minor, mansika vikruti. These manovikruthis are exhibited through abnormal behaviours.1

Medhya Rasayana is elaborated into two words ‘Medhya’ and ‘Rasayana’. Most popular shabdha kalpa druma 2 (shabdha kosha) explains word meaning of Medhyam, “medhyayati iti” That is one which provides medha (intellectual power). In the next line he explains about
Medhyaha, “medhayai hitaha” One which is hita to mastishka or which improves the easy manipulations of mastishka; one which increases medha.. Further gives some examples like raka vacha, jyotishmati, ketatki, shankhapushpi, brahmi, shweta vacha, mandookaparni etc. Coming to Rasayana which is divided into Rasa (dhatu) + Ayana (movement/marga) through which Poshana/nutrients reaches to all the saptadhatu including oja. Further in shabda kalpa druma explaining about laxanas of Rasayana; one which does vyadhi vidhamsa (destroys any disease), which acts as vayasthapaka, chakshushya, bruhma, vrushya. When we combine these two words it becomes a wider aspect. Medhya Rasayana is a self explanatory concept in broad way.

Understanding of different cognitive and behavioral aspects according to Ayurveda: Medhya comprises of all the three mental faculties- Dhee, Dhriti and Smruti and these are interrelated with each other.“Dharana shkti yuktaha dhihi” (amarakosh)the tool by which one can hold the knowledge is called dhi or budhi. It is also called as medha according to shabdha kalpa druma, “dharana shkti yuktaha dhirmedha|”. Dhi or Buddha are synonymous to Prajna and Mahat, and is an Atmaguna. It persists beyond the Mana-level. Like Mana, the seat of Buddha is also described as Hridaya. The function of Buddha is decision-making or determination of what Manas places before it either Arthas or knowledge perceived through Indriya. Dhriti is retention of that knowledge which is perceived by dhi or budhi it’s a nischayatmaka jnyana. Dhriti is the power of will, which controls Manas from the various vikaras or temptation of the harmful objects. Smruti is nothing but the act of remembrance and it’s beyond that. Anubhutam priyadinam arthaanaam chintanaam smruti[shabdhalakpa druma]. The recollection of the past is called as Smrti. Smruti is of three types as drushta, shruta and anubhuta smarana. In these faculties our prakruta dosha perform specific functions like, udana vayu is responsible for vak pravrtti, prayatna, urja (enthusiasm), smruti. So if there is proper fuctioning of udana vayu then these fuctions are not hampered and if hampered causes different laxanas or vyadhi (ardita, apasmara, smruti nasha). In Such cases Medhya Rasayana can be successfully done. In border sense Medhya would be Grahana shakti (Power of Grasping), Dharana shakti (Power of Retension), Viveka shakti/ nischayatmaka Budhi (power of discrimination), last but not the Least Smruti (Power Of Recollection), and one which increases and maintains all these factors are Medhya Rasayana. Neurological and psychiatric disorders are generally associated with loss of memory (dementia, Parkinsonism), cognitive deficits (schizophrenia), impaired mental function, obsessive compulsive symptoms (depression), and such cases can be corrected through Medhya Rasayana.

Medhya Rasayana:
- In Charaka Samhita there is detailed narration of Rasayana, its method and classification. Acharya Charaka has mentioned four medhya drugs Mandookaparni, Yashtimadhu, Guduchi and Shankapushpi as Medhya Rasayanas.3
- In Sushruta Samhita exhaustive information about Medhya Rasayana is available in a separate chapter in chikitsa sthana, named : Medhayushkameeya Adhyaya (su.chi28chapter)⁴. In this chapter detailed description about the method of administration, dosage and duration of different Medhya Rasayanas are available.
In the same chapter he has also described about Medhakara gana.

- In Ashtanga Sangraha and Hrudaya, there is a mention of medhya dravyas along with the duration of their use.  
- A Separate chapter, named as—Rasayana vijnana is explained by yogaratnakara

General assumptions on which Medhya Rasayana works:

- Generalised guna of a medhya would be: snigdha mrudu, guru, na ati rooksha
- Karya would be: sroto shodhana, medhya, tarpana, bruhma, preerana, mastishkya.
- Rasa: mainly tikta rasa, madhura rasa, kashaya rasa
- Prabhava Janya medha vrudhi karya, many dravya are medhya by the virtue of their prabhava.

Medhya Rasayana consists of 4 set of drugs which are given in different forms. Mode of administration remains the same that is through oral route. The 4 drugs and in their forms of administration are in order as:-  
1. Mandooka Parni (Centella asiatica, Umbiliferia family) in the form of swarasa which is snruti vardhaka, mastishka dourbalya hara, and can be used in unnada, apasmar, atatwabhinivesha vikaras. Centella asiatica inhibits the memory impairment induced by scopolamine through the inhibition of AChE. BR-16A (Mentat), a formulation containing Centella asiatica proved for its antistress effects.

2. Yashtimadhu (Glycyrrhiza glabra, Papilionatae family) in the form of ksheera paka budhi vardhaka, nadibala prada, medhya. Fine powder of dried root is used internally with milk for therapeutic purpose as Medhya.

3. Guduchi (Tinospora cardifolia, Menispermae family) in the form of swarasa prabhava: rejuvenates the nervous system enhances intelligence, and research says it improves the injured brain cells. Juice of whole plant is used therapeutically as Medhya. It is also used in the form of decoction, powder and Satwa (starch extract of stem). Its root is known for its anti stress, anti-leprotic and anti-malarial activities.

4. Shankhapushpi (Convolvulus pluricalis, Convolvulaceae family) in the form of kalka nadibala vardhaka, mastishka shamaka, nidra janaka. Shankhapushpi compound containing Shankhapushpi, Sarpagandha, and Gokshura in equal quantities studied to be effective in Chittodvega (anxiety disorders).

When we observe the way these kashtoushadhis are explained, they are given in different forms and that makes them unique. For example if Mandukaparni is given in the form of swara, while preparing swarasa due to kutana (ponding) the leaves are converted into kalka and then squeezed and in this state all active principles of the drug are liberated out. We can take another example such as Lashuna. When it is chewed raw active principle named Acillin is liberated out and it’s the main component as it reduces cholesterol in blood. In the same way when Yashtimadhu is boiled into ksheera the active principles are liberated out during the boiling process and it becomes an excellent Medhya Rasayana. But if the same Yashtimadhu given in the form of choorna its best kapha nissaraka. So only Rasashastra and Bhaishajya Kalpana was formulated because Acharyas...
knew that every drug has its own way of preparation and potency increases by giving samskara. Apart from these we many Ekamooliya dravyas which have certainly marked effects on Mastishka.

**Interpretations and probable mode of action:** Medhya Rasayanas strengthen the body and maintain normal body function. Pitta Dosha maintains the intelligence and Kapha sustains the body with intelligence and Dhriti (courage) by its Sthira Guna. Pranavata performs the intellectual function and it is the main factor involved in grasping and fast recall, especially because of its Chala (mobile) and Vishada (fast-spreading) properties. Sadhaka Pitta performs functions like discrimination between right and wrong by the Nishchayatmaka Buddhi and Medha (intelligence).

Relation between Tridoshas and Medha: Vata: we know that vata is responsible for chala guna and we can say that the nadi samsthana works mainly because of vata because. Among pancha vata Prana vayu is responsible for controlling the functions of Buddhi and Mana, while udana vayu helps in recalling the past experiences; Pitta: Function of Pitta is to promote medha but sadhaka pitta is mainly responsible for good medha, Buddhi, abhimana, dhairy; Kapha: Tarpaka and avalambaka kapha in their normal state confer the knowledge and intelligence. Tarpaka kapha mainly attends the poshana karma bhaga, does poshana of mastishka, masthulunga majja intum increasing the dhi dhruti and smruti. Kapha is also responsible improving qualities of dharana. Relation between rasa, virya, vipaka and Medha: Shita Virya and Madhura Vipaka- it promotes kapha and enhances “Dharana Karma” and does Poshana of Mastishka and nadosamsthana (i.e capacity to retain) e.g., Yastimadhu, Bramhi, Sankhpushpi etc. Sheetavirya drugs act by increasing nourishment to the neuronal matter of brain Via Tarpaka & Avalambaka kapha and by this action it improves dharana(retention). Ushna Virya and Tikta Rasa- it promotes pitta and enhances Grahana and Smarana (i.e. grasping power and Memory) and acts as sroto shodhaka mastishka uttejaka. e.g., Guduchi, Vacha, Jyotishmati etc. Ushnavirya drugs act by stimulating Pachaka,sadhaka ,alochaka pitta & reduces avarana of satva & raja by Tamas & does Srotoshodhana action at the level of Manovaha & Rasovahasrotas. These explanations form the mode of action of Medhya Rasayana according to Ayurveda.

Intrepreting Modern concepts in the light of Ayurveda: When we come to modern explanations we have the concept of Neurotransmitters which are associated with higher mental functions such as memory, learning, emotions like; happiness, sadness, anger, depression etc. Apart from these we have explanation of Limbic system affecting our emotional status. Mainly neurotransmitters related to memory are Serotonin and Glutamate. Deficiency of any of these neurotransmitters leads to impairment of memory, gradual depletion of memory, forgetfulness etc. to enhance these functions there should be enough release of neurotransmitters which increase the encoding, storage and retrieval of memory. Each of these neurotransmitters consists of precursors through which they are synthesized. Depletion of these also can lead to reduced production of neurotransmitters. These precursors can be procured by dietary products. Here we also come across the importance of GUT BRAIN AXIS which directly gives us a
clear idea how these dietary products are converted to neurotransmitters. Gut – brain axis is the biochemical pathway/ signaling that takes place between the gastro intestinal tract and central nervous system. Gut flora is the complex community of the microorganisms that live in digestive tracts of human. The gut flora can produce a range of neuro active molecules, such as acetylcholine, histamine, melatonin and serotonin\(^{15}\). These statements are relevant because researches found noticeable improvements in the ability of rats to cope up with stressful activity when diets where supplemented by specific gut microbiota. Changes, reduction of microbiota, or contamination of other harmful microbes in the gut flora results in the cognitive difficulties and psychological conditions like stress, depression\(^{15}\) etc.

Acharyas have explained that, before administration of any kind of rasayana in the body its always necessary to perform shodhana in the rugna. So he sepecifically mentioned Haritakyadi yoga for koshta shudhi. Here kostha shudhi can be taken as clearing of aama (unwanted harmful microbes) from the gut flora and setting it ready to assimilate different rasayanas administered orally in the presence of helpful microbiota for the easy conversion of active principles into many chemicals which support the entire functioning of nervous system (inclusive of motor, sensory and coagitive functions) Coming to the main aspect each of Medhya Rasayana mentioned, they have some important chemical constituents in them like guduchi with glycyrrhizin, shnkhapushpi with shankhapushpi, some few alkaloids, proteins, tannins, and saponnins which may contain precursors of required neurotransmitters ultimately enhancing their production. When the medhya rasayana are ingested inside with its active principles the precursors come in contact with gut neurons and entrochromaffin cells and intestinal microbiota which metabolize the active principles finally forming the required neurotransmitter thus increasing its availability. When once the availability of a neurotransmitter increases all the functional aspects of brain are back to pavilion and enhanced. Or the chemical constituents are directly transported in the form of proteins crossing Blood Brain Barrier for central neurotransmitter synthesis. This may be the probable mode of action of Medhya Dravyas according to modern.

Apart from enhancing the availability of neurotransmitters research also explains that the above said 4 medhya rasayana have neuro protective activity, increase circulation to the brain, anti stress, intellect promoting, memory formation etc. Medhya drugs act at different levels such as: at level of Rasa, acting by stimulating and improving circulation of Rasa by opening and cleaning the micro channel and thus improving Medhya function.

Ghruta and lipids:
The Shiras contains mastishka or mastulunga and it is snigdha in nature. Mastulunga majja is considered as medadharakala by ashangasangrahakara. The mastulunga resembles partly melted ghee. Therefore the qualities of mastishka should be snigdha, slakshna, guru, mridu, picchila, Sandra etc.., similar to those of snigdha dravya so in case medhya dravya sanskarita ghruta can be administered in the patient which can easily pass through BBB (Blood Brain Barrier).

Ghruta is considered sarva shreshta in all the sneha. It doesahasra karma and is of
sahasra veerya. Rasa, vipaka of ghruta being madhura, guna being snigdha, sheeta virya. It does these works: mastulunga poshaka, preenana, smritibudhi vardhaka, agni vardhaka, ojavardhaka, kapha medha vardhaka, medha shakti vardhaka, bala vardhaka, shukra janana, nertya, good for balaka and vrudha, Santana janaka, kantidayaka, soukumarya. It’s said “samskarasyanuvartanat” i.e with whatever medicine the ghruta is samskarita, it depicts the guna of that dravya.

The brain and CSF are separated from the blood by Blood Brain Barrier, which regulates the movement of substances into and out of the nervous system. And only lipid soluble substances, oxygen, carbon dioxide, glucose can pass through it. The lipophilic action of ghee facilitates the transportation of its content to the brain and nervous system through BBB which also has lipophilic molecular structure. This makes lipid and lipid soluble drugs pass easily through BBB. So the drugs which are in the form of Ghruta which are lipids are rapidly absorbed in the target areas of central nervous system. Ghruta also acts as an anti oxidant which repairs the degenerative brain cells. It also acts in normalizing the chemical changes in brain by balancing the neurotransmitters.

There are many Medhya ghruta explained by our Acharaya and also murdhn taila which are mastishkya, uttejaka and vata shamaka. Kalyanaka ghruta, Panchagavya ghruta, Brahmi ghruta, Jyotishmati taila, Lashunadya ghruta, hingwadi ghruta etc which do the sampрабodhana of hrudaya and mana but also are explained as medhya.

Apart from this when tail and ghruta yogas are unavailable then rasoutheseadhis can also be made prayoga. Swarna kalpas are the best medhya which are vrishya, balya, brimhana, rasayana, mati smriti prada, ayushkara, nertya. The best example is swarna bindu and swarna vachadi yoga. Other yogas like swarnavasantas malati, swarna bhupati rasa, bruhatvata chintamani rasa, brahmi vati swarna etc are also parama medhya in nature vata hara, mastikshka shamsaka, budhi prada etc. Apart from these rajata, loha, shillafita,pravala, mukt, swarnamakshika, kalpas are also medya.

CONCLUSION: Medhya rasayana is a beautiful concept. The 4 medhya are explained because of their increased efficacy towards forming new neural conenctions i.e increasing budhi. Apart form these we can study many other drugs having the same medhya property such as, Aindri, rasona, gojivha, eranda, Jyotishmati, tila, dadima, palandu, kashmari, priyangu, biwla phala, nilotpala, Brahmi, shweta bakuchi, bala, agaru, Kushminda beeja, ela, aakarakarabha, chitraka, Vacha lavanga, keshara, Ashwagandha, Bringaraja, Apamargabeeja etc.the practice of rasayana these days has declined and people have forgot what wonders can rasayana work. Medya rasayana is not only limited to regulate the higher mental functions but also have pronounced potency in treating many mental disorders and disturbances such as parkinson’s, alzheimer’s, depression secondary to any disease, epilepsy, amnesia, bipolar disorder, insomnia, obsessive compulsive disorder and so on. Medhya rasayana is not limited only to the 4 medhyas explained in classics but is a broader concept and allows vaidya to apply his yukti and use different forms of medicines as ghruta kalpanas, swarna kalpana, choorna, arishta kalpanas etc. Medhya basti is also in practice now a
days and is intervented in the patient and can be debated keeping the *doshik siddhantas* & entric nervous system / gut-brain axis in mind.

**REFERENCES:**

1. Dr. Shalashri Patil “A Comparative Clinical Study On School Going Children With Samvet (Medhya Rasayana) Capsules, W.S.R To Iq’’ Ayurveda Mahavidyalaya Hubli, Rguhs Banglore 2015. Pg 25
13. Dr. Kalra Sanjeev, “A study on the effect of Shankhapushpi compound and Satwavajaya Chikitsa in Chittodvega (generalized anxiety disorders)” Dept. of Post Graduate studies in Manasa Roga, SDM College of Ayurveda and Hospital. Hassan, Rajiv Gandhi University of Health Sciences, Karnatakaka. 2006,
14. Dr. Atul Shankar Sarokte and Dr. Mangalagowri V. Rao, article on “Effects
Title : Gut-Brain Axis (Wikipedia).

Corresponding Author:
Dr.Kulkarni Oorvi, PG Scholar, Ayurveda Mahavidyalaya Hubli, Heggeri.
Email: dr.oorvikulkarni@gmail.com

Source of support: Nil
Conflict of interest: None
Declared